III

THE FUNCTIONAL VIEW OF MIND

I. PRAGMATISM AND THE CONCEPT OF FUNCTION

IN tracing the development of the contemporary treatments of mind, it was noticed that the realistic movement vacillated between regarding mind as a relation among factors of the directly experienced world, and regarding experience as mental and as somehow imposed between the organism and the physical world which is not directly given. This second tendency, involving a regression to an earlier historical position, was primarily due to the endeavor to get enough mind to account for error without unnecessarily complicating the picture of the world. It is possible that a more adequate analysis of mind in experiential terms would keep intact the essential insight of new realism that we are not confined to our own mental states, and would avoid the regression to the "brain-mind" metaphysics of critical realism. In avoiding the metaphysical extremes of both realism and idealism, the movement of contemporary philosophy variously known as pragmatism, radical empiricism, and instrumentalism, offers an alternative approach to the problem of mind. Without failing to appreciate the systematic active features of mind, it is able to regard mind as operating in a larger non-mental environment which may be regarded as ultimately "real" and not as a mere mental modification of the world of nature. This approach involves the passage from the treatment of mind as bare relation to the treatment of mind in terms of function.

The term function, like the term substance, has a number of meanings which make a precise definition difficult. The term is often used to denote the normal mode of performance of some thing or organ, as when we speak of an engine or a heart functioning well. Closely related to this meaning, if indeed not inseparable from it, is the use of the term function to indicate the purpose which a thing fulfils or the rôle which it plays, as when we speak of the function of the heart as the distribution of blood, or the function of a particular stone on a writer's desk as that of serving as a paper-weight. There is a third meaning of function, the mathematical one, in which one term is a function of another if, when a value is assigned to the first, the second term thereby receives a specific value. In the notion of function that is to be employed in discussing the fourth type of theory of mind it is necessary to combine the elements of activity, rôle, and concomitant variation suggested in these various uses of the term. On the pragmatic position, mentality is the characteristic of experience performing in a certain functional rôle, and not a characteristic of experience in itself, experience as bare givenness being neither mental, psychical, nor subjective. The specific nature of this function will be determined as the argument progresses. Mentality, then, is similar to the status of being a paper-weight: whether a specific material object is a paper-weight or not depends upon the rôle it performs, upon the way it is used. The same object may therefore be a paper-weight at one moment and not a paper-weight at the next moment. Although functionality is undoubtedly a kind of relation, it is vastly more complicated than the bare relation of togetherness.

Historically, pragmatism shares with new realism a fundamental opposition to the metaphysics of absolute idealism. In fact, these two reactions were not in the beginning sharply

separated, Peirce and James, for instance, contributing about equally to both the new realistic and pragmatic movements. The division that ultimately appeared is perhaps due to the fact that pragmatism nourished itself upon the results of biology and psychology, and showed an ever growing humanistic concern with the social activities of man, while the new realistic movement, shunning psychologism, drew its life-blood from the mathematical and physical sciences, priding itself upon an aloofness from anything that smacked of the social reformer. However antithetical the pragmatic and realistic attitudes may at first sight appear, there is some evidence of the growth of an attitude, and perhaps of a metaphysics, that is both pragmatic and realistic, the pragmatist being forced to extend his doctrine into the fields of mathematics and the philosophy of science, and the realist being forced to consider the sphere of value.

The pragmatic movement developed practically simultaneously in this country around the personalities of James and Dewey,[1] and these two thinkers have remained the complementary germanating centers of the philosophy. Speaking in general terms, it may be said that James has contributed a self-reliant individualism, a radically empirical orientation, and a metaphysical background, which in its emphasis upon the appearance of genuine novelty in the world process, opposed the static completeness of both mechanism and absolute idealism, a background in harmony with the position now known as emergent evolution. In addition to these factors, Dewey has emphasized the category of the social in working out the implications of the pragmatic attitude for ethics, education, and logic, and represents a more secular

[1] On the history of pragmatism, see Dewey's article "The Development of American Pragmatism," in vol. II of the Columbia *Studies in the History of Ideas*.

and critical attitude than is found in James. The characteristic difference in temper of James and Dewey is reflected in their analyses of mind.

James only developed slowly in the direction of a radical empiricism. In the *Psychology* James' position is that of a dualistic realism which regards "mind knowing and thing known" as two irreducible elements.[1] "Some sort of *signal* must be given by the thing to the mind's brain, or the knowing will not occur,"[2] and in any case, "the thing remains the same whether known or not."[3] In spite of having for the criterion of mind "the pursuance of future ends, and the choice of means for their attainment,"[4] there are places in the *Psychology* where James practically identifies "mental states," "thought," "states of consciousness" with the mere fact of experience.[5] Thus the stream of experience is regarded as a stream of thought; sensations are called thoughts and are regarded as intrinsically cognitive. The bare suggestion that except for sensations "the stuff of which all our other thoughts are composed is symbolic,"[6] is not followed by any adequate treatment of the symbol. There is as yet no functional distinction of the concept from the percept, of reflective from immediate experience.

The situation has changed entirely by the time of the publication of the paper on "Does Consciousness Exist?" Here James denies what he had previously affirmed, namely, that there is any conscious stuff opposed in nature to the realm of matter, insisting that "thoughts in the concrete are made

[1] *The Principles of Psychology*, vol. I, p. 218.
[2] Ibid., p. 218.
[3] Ibid., p. 219.
[4] Ibid., p. 8.
[5] Ibid., p. 186.
[6] Ibid., p. 471.

of the same stuff as things are."[1] In the further treatment of thought and mind, James really proposes two answers, not contradictory to be sure, but confused and intertwined because of James' failure to distinguish them. There is first the clear presence of a relational theory of mind,[2] the insistence that the same bit of content can now figure in a mental context, and now in a physical context, and now in both at once. The analogy which James gives is the point of intersection of two lines. The perceived room has connections with the series of events that are regarded as physical, but the same perceived room is also an event in the series of events which constitute a mind. On such a basis two or more minds may know the same thing.[3] It is in terms of this line of thought that James writes,[4] "a 'mind' or 'personal consciousness' is the name for a series of experiences run together by certain definite transitions, and an objective reality is a series of similar experiences knit by different transitions," a view which reminds one of similar statements in Hume, Mach, and Russell. This relational theory of mind is used by James to explain mind and knowledge at the perceptual level.

This relational explanation is at times applied by James to situations where it is inadequate, as in the case of the relation of fire to the perceived room, where he says of the room, "in the real world, fire will consume it. In your mind, you can let fire play over it without effect."[5] Here it is plain the perceived fire and the imaginatively conceived fire are not just the same content in two contexts, but rather that the conceived fire is one portion of experience acting as a symbolic substitute for other portions.

[1] *Essays in Radical Empiricism*, p. 37.
[2] Ibid., pp. 12, 14.
[3] Ibid., pp. 39-91, 123-136.
[4] Ibid., p. 80.
[5] Ibid., p. 14.

In the main, James himself shifts from a bare relational to a functional theory of mind in passing from the perceptual to the conceptual level of experience. On this type of explanation,[1] James no longer regards thought as equivalent to all of experience, but as concept thought is now separated from a percept by the function it performs.[2] The term intellect is practically restricted to this conceptual functioning. A concept is a percept that has become a substitute for other percepts which it leads to and which it "means." The world of concepts can rise to higher and higher levels of abstraction, and it is in the noting of the relations between these concepts that the formal studies of mathematics and logic arise.[3] The final value of concepts, however, lies in their relation to perceptual experience, in the biological rôle they play by admitting of mental experimentation in advance of overt action, and by rendering possible the analysis, recognition, and manipulation of the perceptual stream.[4] "Whenever," he says, "we intellectualize a relatively pure experience we ought to do so for the sake of redescending to the purer or more concrete level again."[5] Since the very meaning of a concept can only be stated in terms of the percepts it stands for, and the consequences for action which it suggests,[6] truth and knowledge are to be experientially described in terms of the relation of concepts to the percepts to which they lead when acted upon.[7]

[1] Chapters 4, 5, and 6 of *Some Problems of Philosophy* are the most important source for James' treatment of the concept.

[2] *Essays in Radical Empiricism*, pp. 61-66, 201. On p. 137 James adds that the opposition of thought and things is one of function as well as relation.

[3] *Some Problems of Philosophy*, pp. 51, 52, 67-69.

[4] Ibid., pp. 57, 63, 65.

[5] *Essays in Radical Empiricism*, p. 97.

[6] *Some Problems of Philosophy*, p. 60.

[7] *Essays in Radical Empiricism*, pp. 52-61; *The Meaning of Truth*, pp. 132. 140.

There undoubtedly remain difficulties in James' position, due in part to the attempt to treat mind and knowledge as characters of both the immediate and conceptual levels of experience. While passing towards the position of identifying mind with what we shall in the future call the symbolic portion of experience, James never attains an entirely clear-cut view of the symbol. It is not fair to make too much of an isolated statement written in the course of his own development, but any position which identifies thinking with the stream of breathing[1] cannot be said to have attained a satisfactory criterion of the mental.

Not hindered by an attempt to regard experience as such as mental or as a case of knowledge, the functional view of mind becomes much more explicit in Dewey, and to the descriptive analysis of mind in experiential terms is added an emphasis upon the social factors in the mental process. According to Dewey, experience itself is but a "natural event" with no cognitive status, but in problematic situations where the reacting organism is otherwise unable to effect an adjustment, certain portions of immediate experience function in a new rôle, that is, function symbolically,[2] or as Dewey often says, function logically. In this way portions of experience become ideas or symbols, indications of coming experiences, instruments, in short, for the reconstruction of the problematic situation. As in James' view, reflective experience arises out of and must ultimately return to the realm of immediate experience. It is the functioning of such portions of experience that gives the criterion of mind. Consciousness is the locus of such logical objects; states of consciousness are "symbols, in short."[3] Mind is "the presence and operation

[1] *Essays in Radical Empiricism,* p. 37.

[2] *Essays in Experimental Logic,* pp. 226-229.

[3] "The Realism of Pragmatism," *Journal of Philosophy,* 1905, vol. 2, p. 325.

of meanings, ideas."[1] Mind is a "system of meanings,"[2] the "state of things in which qualitatively different feelings are not just had but are significant of objective differences."[3] As contrasted with consciousness which is "focal and transitive," mind, as "contextual and persistent," "denotes the whole system of meanings as they are embodied in the workings of organic life; consciousness . . . is the perception of actual events, whether past, contemporary or future *in* their meanings, the having of actual ideas."[4] Mind thus becomes the great tool by which man controls his world and himself, the symbolic use of the experienced world, and not a substance, not a pure act, not the bare passage of experience, and not the bare relation of experienced content to the nervous system. Mind and matter are not in any sense "static structures," but "functional characters."[5] In terms of behavior, mind may be defined as "the ability to anticipate future consequences and to respond to them as stimuli to present behavior."[6] Finally, mind so conceived may be connected with the general doctrine of emergent evolution.

There is one aspect of Dewey's treatment of mind that must receive specific mention, and that is the conception that mind is intrinsically social. Although pragmatism has always emphasized the relation of mind to action, and has always been behavioristic in the larger non-Watsonian sense of stressing the central importance of behavior for philosophy (its radical empiricism prevents it from adopting the overly simplified metaphysics of Hobbes, Watson, and Weiss), Dewey has consistently opposed the tendency to find the seat

[1] *Experience and Nature,* p. 290.
[2] Ibid., p. 304.
[3] Ibid., p. 258.
[4] Ibid., p. 303.
[5] Ibid., p. 75.
[6] *Creative Intelligence,* pp. 39, 40.

of mind in the individual brain or nervous system, and has stressed a position that might be called social behaviorism.[1] Admitting that mind is the symbolic functioning of experience, Dewey has increasingly come to regard this functioning as of social origin. While believing that "the identification of knowing and thinking with speech is wholly in the right direction,"[2] and while not doubting "that vocalization, including overt laryngeal changes, furnishes the mechanism of the greater part (possibly the whole) of thought-behavior,"[3] Dewey regards the Watsonian type of behaviorism which neglects the social situation, and which makes language a bare succession of movements in the vocal cords or movements substitutes for these movements, as giving a grossly oversimplified "subcutaneous" theory of the mental processes.[4] For Dewey the heart of language is not the expression of antecedent thought, or the bare fact of vocal cord movements, but "the establishment of coöperation in an activity in which there are partners, and in which the activity of each is modified and regulated by partnership."[5] While animals respond to stimuli of the substitutive sort, as when the hen moves away at the farmer's motion of throwing food, a child learns to react to sounds and actions "as signs of an ulterior event so that his response is to their meaning. He treats them as means to consequences. The hen's activity is ego-centric; that of the human being is participative. The latter puts himself at the standpoint of a situation in which two parties share. This is the essential peculiarity of language, or signs."[6] On this theory, animals, not having

[1] *Experience and Nature,* pp. 290-295.

[2] *Journal of Philosophy,* 1922, vol. 19, p. 561.

[3] Ibid., 1914, vol. 11, p. 510.

[4] Ibid., p. 509-511.

[5] *Experience and Nature,* p. 179.

[6] Ibid., pp. 177, 178.

language, are not regarded as having minds. Mind is an emergent characteristic at the level of social or coöperative behavior.[1] The factor of meaning or mentality which language makes possible is then extended to other events, so that the ultimate origin of mentality is social.[2] Finally, "thinking as implicit speech . . . represents the social situation carried over into the habits of the organism. One talks to himself as a way of anticipating objective consequences (that is, consequences into which the environment enters) before they happen."[3] Dewey occasionally speaks of the "body-mind"[4] in emphasizing the relation of mentality to behavior, but such remarks should not be allowed to obscure his general doctrine that mind is the symbolic functioning of portions of experience, and that the ultimate source of all symbols, and so of mind, is the language process.

Dewey has always thought in terms of the social categories, but it is not a very bold guess to suppose that the identification of the symbol with the language symbol represents, in part at least, the influence of G. H. Mead. According to Mead,[5] the symbol, when limited to what he calls the significant symbol, arises in those social situations where one participant can take the rôle of the other and stimulate himself as the other would stimulate him. Speech makes this possible, for in talking to others one stimulates oneself at the same time and in a way similar to the way one is stimulated when others are talking. In the use of significant symbols the user is anticipating a social situation, that is,

[1] Ibid., p. 258. Patrick has especially considered the relation of mind to the doctrine of emergent evolution in his book, *What is the Mind?*

[2] *Experience and Nature*, p. 174.

[3] Ratner, *The Philosophy of John Dewey*, p. 103.

[4] *Experience and Nature*, p. 277.

[5] "A Behavioristic Account of the Significant Symbol," *Journal of Philosophy*, 1922, vol. 19, pp. 157-163.

anticipating the effects upon others of the symbols to be used. The situation may however be further "internalized," so that one becomes the other to oneself. Thinking as opposed to overt talking becomes the conversation of the self with the "generalized other." In moral conflicts, in particular, it is not unusual to be aware of an inner conversation, one member of which is the voice of the desires and urges of the individual, while the other member is the voice of the "generalized other," the social phases of the self, the social attitudes reflected in the voice of conscience. Whenever a person acts in the light of what "people" will say, the situation which Mead so acutely describes is unmistakable.

Markey[1] has given an interesting elaboration of the detailed mechanism involved in the Mead-Dewey theory of the symbol, but it will be convenient to postpone discussion of this, and of the philosophical bearings of the whole functional approach to mind, until after a more systematic presentation of what we may now call the symbolic theory of mind, a presentation which, while in harmony with the accounts of Mead and Dewey, in attempting to answer the question whether all symbols are language symbols, advocates a wider use of the term symbol, a use which allows of the extension of the term mind to certain animals, and to situations that are not essentially social.

II. THE SYMBOLIC THEORY OF MIND

In approaching the concept of the symbol,[2] an assumption will be made at the outset, namely, the assumption that reality appears in a plurality of perspectives with organisms as the foci or the centers of the perspectives. It is not pro-

[1] *The Symbolic Process.*

[2] A more detailed account of the symbol, but with no express reference to the topic of mind, will be found in the *Journal of Philosophy*, 1927, vol. 24, pp. 253-262, 281-291.

posed to discuss any of the philosophical problems which such an assumption involves, such problems as to whether there are other perspectives than those which are organically centered, as to whether what appears in a perspective appears in an identical form in other perspectives, as to whether the factors within a perspective are dependent upon each other for their nature and existence or whether such factors may pass unchanged in and out of a perspective, and as to whether reality consists of perspectives or whether the perspectives are perspectives of an "underlying reality." Even the problem as to whether what is given or experienced is a character of the world only in the presence of the organism will not concern us. In fact, one of the advantages of the symbolic theory of mind is that it is not dependent in any way upon the answer given to such problems. All discussions of the emergent versus the selective theory of sensa leave it untouched.

That which is given at any moment is a perceptual perspective with an organism at the focus or center. The perspective called "mine" is mine only in virtue of the fact that the body called "mine" is, although only one factor among others, the focal factor of the perspective. It is the focal factor because even though at times the body is not given (as when we are said not to be self-conscious but absorbed in the "objective" world) it can easily be "recovered," and because while the body varies with the other factors of the perspective, the other factors of the perspective seem to vary in an even greater degree with changes in the body. The whole given visual world, for instance, changes with a rotation of the body, and is practically blotted out by a closing of the eyes, and is changed by eye trouble and the taking of drugs. While such changes can be validly called casual, it must be insisted that the body when

given is simply one factor among the given, that it shares, as Mach would say, the same spatial field with the other given factors. Within the perspective there are discriminations to be made. In addition to my body, there also appear other organisms,[1] and other persistent factors of experience which can be approached, touched, and handled. These persistent touchable aspects of experience may be designated as physical objects. There are other aspects of experience which cannot be approached, touched, or handled, and which are less persistent and stable, such as after-images, emotions, hallucinations, kinæsthetic sensations. Instead of regarding these as mental and of a order different from the physical objects, these may be simply called non-tactual or non-physical experience.

It is possible to make plausible, though perhaps not to "prove," the assumption that certain of the objects which appear in my present perspective are themselves centers of experience or foci of perspectives. (Of course the belief in such centers of experience is not derived by reasoning. Like the child's application of the same name to widely diverse objects, there is no reason not to act as if other organisms and even other things were not centers of experience. Only as the resulting behavior of the objects fails to meet with conviction in the sphere of further experience is the sphere of this belief limited. Panpsychism and radical behaviorism represent the two extremes of the process.) If one needs to be convinced that some of the organisms which appear in "his" perspective are themselves centers of experience, the phenomena of language furnishes the most convincing examples. Suppose that I say to organism x, "take a piece of

[1]The expression of a body appearing in a perspective will only cause trouble if one begins with the notion that a perspective is at an instant and has no duration. But as Whitehead has maintained, such perspectives are derived by a process of abstraction from the "thick" perspectives that are given.

paper, start two inches from the lower left-hand corner, draw a wavy line two inches toward the diagonal corner, and around the point last drawn draw a circle two inches in diameter," and that I then take the paper and see there the same figure that I had intended to be drawn, then the conviction that the other organism is a center of experience is almost irresistible. It may be, as Broad suggests,[1] that "the position of a philosopher with no one but himself to lecture to, and no hope of an audience, would be so tragic that the human mind naturally shrinks from anticipating such a possibility," but the belief in other centers of experience besides our own plays so important a part in human life that not only the pitiable plight of the solipsistic philosopher justifies its retention.

This perspective in which appear the focal organism, tactual objects, and non-tactual objects may be called the total self-inclusive point of view or perspective. From this perspective the "world" can only be the indefinite extension and widening of the perspective, the body must be regarded as appearing alongside of other bodies and sensible qualities, a brain is studied as directly as a color is inspected, and causal relations can only be stated in terms of experiential sequences.

Before discussing mind from this total self-inclusive point of view, it must be noticed that this perspective can be broken up into two more restricted perspectives, neither of which, it is believed, is able to furnish a satisfactory theory of mind.

The first of these may be called the partial self-inclusive point of view. To take the extreme case, imagine a person lying motionless on a couch in a dark room. Here the perspective has practically been narrowed to non-tactual given. There are some sensations of pressure, there are kinæsthetic

[1] *The Mind and Its Place in Nature*, p. 318.

sensations, and kaleidoscopic intangible visual experiences against a black background, but no physical objects are directly given. Imagine such a person attempting to analyze the experienced meaning of the word "dog." Upon saying or thinking the word, sensations of various sorts perhaps appear, together with various images, but little or nothing else. The meaning of the term dog in such a perspective appears simply as a non-tactual context. It is undoubtedly such situations which have given rise to the view that mind and meaning are private and subjective, and revealed by introspection.

The second possible perspective may be called the self-exclusive point of view. Here observation is limited to the physical objects which appear in a perspective, and thus the content of the physical sciences appears, content that is genuinely found in experience but which is considered apart from other experienced content. If observation is further restricted to the interaction of organisms with each other and with the environment, then the perspective of the radical behaviorist is obtained. From this point of view, all that can be observed are the variations in the behavior of the organism upon the presence of stimuli, variations, to be sure, that are due as much to the state of the organism as to the nature of the stimulus. The radical behaviorist is entirely right in insisting that his position leads inevitably to a stimulus-response psychology, and that any reference to consciousness, attention, sensation, meaning, language, or mind, *in the organisms observed,* is a gratuitous assumption, and not an observation, unless these concepts are stated in terms of overt or covert bodily behavior.

There is a natural, but philosophically dangerous, tendency to go further, the tendency to interpret the total self-

inclusive point of view in terms of the self-exclusive point of view. Having taken the self-exclusive point of view to other organisms, the observer of such organisms is bound to admit that another observer, observing him, the first observer, would also find nothing (except perhaps visual qualities) that could not be stated in stimulus-response terms, and the natural conclusion of this taking in imagination the behavioristic attitude to oneself, is to regard it as likely that all that is meant by thought, mind, or meaning, and even of experience itself, is some kind of bodily behavior, whether over or covert, cerebral or muscular, laryngeal or non-laryngeal. The same transference of perspective is basic to the Galilean-Cartesian-Newtonian world-view, to Watsonian behaviorism, and to critical realism, except that in the former case the content witnessed from the total self-inclusive point of view is tucked away in a substantial mind, while in the two latter cases the content is identified with some behavior of the organism or located in the brain. In brief, the whole tendency of thought exemplified in the Galilean-Cartesian-Newtonian world-view, and all of its modifications, arises in the attempt to reduce the content observable from the total self-inclusive point of view to, or to include this content in, the content observable from the self-exclusive point of view, and the only way to avoid this result is to refuse to make this reduction or inclusion, to refuse any identification of the two views.

This refusal is defensible. The most extreme objectivist must admit that he is observing something, which he calls physical objects, rats in mazes, behavior. He also sees colors connected with these physical objects. Our primary interest in the books of the behaviorist and the physicist is in the report they contain of what has been experienced. The

words used are to be taken as symbols of this experience. If the writer replies, as Weiss does,[1] "for me, 'I am observing' only means 'I am responding'; and 'I am experiencing' also means 'I am responding,' " then the reader may also legitimately say that he is not so much interested in the writer's response, but would like to know something about the world. If what A observes is "in" A, and if B's observation of A is in B, and C's observation of B observing A is in C, an infinite regress is set up which destroys the whole objectivity of the perceived world, and forces the old dualism to reappear between the world as experienced and the "real" world that is not directly experienced. The attempt to include the content of one perspective in the content of another leads to the attempt to put the perspective in which the organism is found as one among other experienced factors into the organism itself. In this way a contrast between perceptual and physical space is set up.[2] The non-experienced physical world is regarded as causing changes in the non-experienced physical body, and these changes are regarded as leading to or identical with the world of experience, which is now located in the organism. In short, the Galilean-Cartesian-Newtonian world-view is present in all essentials. In refusing to admit the legitimacy of the reduction of the total self-inclusive point of view to the self-exclusive point of view, that is, by insisting upon the irreducible plurality of perspectives, one passes entirely beyond the range of assumptions of this world-view.

On the basis of the above analysis, it is advisable to return to the total self-inclusive point of view in order to frame a suitable definition of mind, particularly since this perspective

[1] "Behaviorism and Behavior," *Psychological Review*, 1924, vol. 31, p. 140.

[2] Cf. Russell, *The Analysis of Matter*, pp. 252, 253.

does justice to both the introspectionist and behaviorist positions without being reducible to either.[1]

There is a directly experienced difference between the bare hearing of a sound or seeing of a mark and the hearing or seeing of such a word as "dog." One experience is practically or totally meaningless; the other is meaningful. In describing this difference it is undoubtedly correct to say that the meaningful word had a context different from the context of the meaningless word or sound. The former evokes bodily tensions, it tends to be followed by other words, it is felt as familiar, and in many cases, although not in all, it calls out the kind of non-tactual given that is generally called an image. But even this difference in context cannot be taken as exhausting the meaning of the term dog, which seems to "refer" or "point" beyond itself in some way. The context gives at best *the meaning,* not *what is meant,* for what is meant is a certain kind of organism which has appeared in experience, and which can be sought and pointed out if necessary. The word "dog" is a now present symbol of the now absent dogs.

Wherever there is this symbolic functioning there are things signifying and things signified, something means and something is meant. This symbolic relation is clearly acquired and involves in the last analysis the compresence of the two objects or events in experience. The phenomenon known as the substitute stimulus is so well known that a description of it is hardly necessary. It may merely be recalled that in most animals, if two stimuli objects are presented, the first of which calls out a certain response which the other does not

[1] It may be noted that Pavlov, while insisting that the scientist must work from the "objective" position, believes the philosopher must integrate the "objective" and the "subjective." *Lectures on Conditioned Reflexes,* p. 60.

call out, by the continual presentation of the two stimuli together, the second will finally call out the response which originally only the first called out. In such a case the second stimulus is called a substitute stimulus for the first, or the response which is thus connected with the substitute stimulus is called a conditioned response.

The symbol may be regarded as an outgrowth of the substitute stimulus. It is a substitute stimulus, which while calling out in some degree the response to the original stimulus, also evokes in some form the original stimulus. In every case the symbol is a substitute stimulus, but every substitute stimulus is not a symbol.

The distinction between the substitute stimulus and the symbol may be illustrated by the case of Pavlov's celebrated dog.[1] It will be remembered that the salivary glands of the dog, originally called into activity by the presence of food in the mouth, came in time to be called into activity by the mere sight of the food, or the sight of the experimenter, or the sound of footsteps, or the sound of bells, and so forth. These have become substitute stimuli, observable from the self-exclusive point of view. There is nothing about this situation that requires the ascription of the term "mental." Suppose however that at the sound of the bell, the salivary glands not merely functioned, but that the visual image of the food was also invoked, then the bell could be regarded as a simple symbol for the food, a "reminder" of the food and not merely a substitute stimulus for it. At a more complex level, an odor may elicit familiar responses without being a symbol of the situation in which it originally appeared, and often the exact moment when the substitute stimulus becomes a symbol can be observed, that is, when the original situation is invoked or remembered. These examples may perhaps

[1] Pavlov, op. cit., chap. 26.

serve to illustrate the difference between the substitute stimulus and the symbol.

Although any detailed explanation of this difference is in part hypothetical, it may be noticed that there is some ground upon which such an explanation can be based. If the sight of the food in the above case was itself connected with some sort of response, as is to be supposed, there is no reason why the sound of the bell, in calling out implicitly this response, should not call out the image of the food.[1] This kind of hypothesis would cause the behaviorist no difficulty since he could identify the image and the implicit movement, nor would it clash with any position which regarded the experienced object as being in part due to the organism, for in such a case the movement would simply be part of the conditions necessary for the emergence of certain sensa. With a little ingenuity such a hypothesis could even be reconciled with the realistic doctrine that sensa are selected by the organism, not produced by it, for in this case the movement of the organism simply serves as one of the conditions which determine this selection. Hunter would not wish to use the word "image" (and even on the present account all symbols do not involve imagery), but his position that a symbolic response is a "substitute process which can be reinstated by the organism, but *only* where associative traces of the original process persist in the integration,"[2] suggests a possible physiological basis for the symbolic process, and if the traces of the original process are present in sufficient degree, there seems to be no objection to describing this as a rearousal in some form of the otherwise now absent stimulus.

Any portion of experience, then, that has become a substi-

[1] See M. F. Washburn, *Movement and Mental Image,* chapters 3 and 4, and pp. 30, 31 in particular.

[2] "The Symbolic Process," *Psychological Review,* 1924, vol. 31, p. 488.

tute for and a reminder of some other portion of experience may be called a symbol. Or more precisely, "a symbol is any given or experienced substitute stimulus that leads to a reinstatement of the original stimulus in a form that is only observable from the self-inclusive point of view."

The school of thinkers led by Mead and Dewey would probably regard this characterization of the symbol as defective for two reasons: as not sufficiently stressing behavior, and as employing the term symbol below the level of language symbols. As for the first point, the present theory recognizes the closest relation of the symbol to the organic process of adjustment, but it does not believe it is advisable to use the term response to cover all experienced qualities,[1] nor that it is necessary to attempt to identify such qualities with segments of physiological behavior.[2] The only behaviorism this present theory would not harmonize with is the oversimplified Watsonian behaviorism. As for the second point, it is doubtful if it is necessary to reserve the term symbol for socially acquired symbols. In this connection we may glance at Markey's treatment of the symbol.

For Markey,[3] symbols arise only in social-vocal situations, the material for the symbolic process being found in the vocal sounds of the child that have been circularly conditioned, that is, sounds the hearing of which has become a substitute stimulus for the uttering of the sound. Given such conditioned circular responses, the voice of the mother, when it repeats a sound of the child that has been circularly conditioned, tends to call out the utterance of the sound by

[1] As Markey does, *The Symbolic Process*, p. 33 n.

[2] Neither Mead nor Dewey is guilty of such a reduction, I believe, but to avoid confusion the sense in which they use the term must be carefully noted. For Dewey, behavior is "more than physical." (*Journal of Philosophy*, 1914, vol. 11, p. 510) On Dewey's use of behavior, see Ratner, *The Philosophy of John Dewey*, p. 100.

[3] Op. cit., particularly chapters 3 and 9.

the child. Further, by a process of substitution, the presence of the mother and even objects near her, may become substitutes for the mother's voice, and thereby come to call out the vocal response of the child. This vocal response, finally, comes to stimulate the child as the previous presence of the mother and her voice stimulated the child, and such a vocal response, performing the stimulating rôle of another person, but differentiated from the other person's voice by the child's own original responses to his own voice, is a symbol. Symbols arise, accordingly, out of the social-vocal situation. Thinking, which at first sight does not seem to be necessarily social, is explained as the internalization of the social act of conversation.[1]

Now there can be no doubt that this interesting account gives the way in which the majority of the important and fairly permanent symbols have arisen, and that the Mead-Dewey-Markey account of the symbol is one of the most significant analyses of certain aspects of mind in contemporary thought. But a number of considerations make it advisable to hesitate in identifying all symbols with language symbols growing out of the social-vocal situation. There is some doubt as to whether either the vocal or the social aspect is indispensable. First as to the vocal aspect. One implication of this theory would be that a family of deaf-mutes, not especially trained by normal individuals, would develop no symbols and no mental phenomena. This seems highly questionable, but since this is open to some kind of determination by the study of deaf-mutes, and some check afforded by experimental evidence, no dogmatic statement one way or another is as yet desirable. Secondly, while the older theory of a gestural language preceding vocal language

[1]This particular point, found also in Mead and Dewey, is developed in Grace de Laguna's *Speech: Its Function and Development,* pp. 341-343.

is passing into the discard, it nevertheless does not seem likely that all gestural symbols are derived from vocal symbols. Thirdly, although writing is undoubtedly very young in comparison to spoken language, the fact that writing was pictographic in origin and only later became phonetic suggests that there may have been subsidiary forms of symbolism, visual in this case, that have been supplementary to, and not derived from, the vocal symbolism.

As for the social aspects of the symbolic process, the question is as to whether another person is absolutely necessary for the symbol, even the vocal symbol, to develop. Admitting that the case is an extreme one, echoic phenomena might occasionally take the place of the other person's voice. Then there are certainly sounds in nature which could perform this function, and the onomatopoetic aspects of language would be explained on this assumption. There is nothing in the hypothetical physiological basis of the symbolic process which make it impossible to conceive of the conditioned circular vocal responses being directly conditioned by non-auditory aspects of the world.[1] Could not a stimulus S by occurring along with the (perhaps physiological) stimulus which calls out a vocal response become a substitute for the original stimulus and thereby call out the vocal response directly? Once this is done S^1 could become a substitute for S, and even a symbol of it. Finally, without any vocal response at all, it seems possible that of two objects experienced together, one could become not merely a substitute for the other, but could lead to the rearousal of sensory processes connected with the other object and in this way become a symbol of it.

[1] Allport, whose work has been basic to all later theories of language, does not hesitate to make use of such an assumption in explaining how language first arose. See his *Social Psychology*, pp. 194, 195.

If to these considerations be added the further considerations that the individual and society are correlative, that the possibility of the symbol must be found in the mechanisms of the individual, and that no sharp line is to be set up in the evolution of intelligence from the animal world to man, it may be seen why it is felt to be desirable to adopt a view of the symbol that would not restrict the symbol to socially acquired symbols, but which would be able to combine Hunter's use of the term with that of Markey's. Fortunately no difference is made in either case in the general theory of mind, the question being simply one as to the range of the application of the term "symbol." However used, the important thing about the symbolic process is that it allows the appearance in some perspective of objects and situations not present in the direct sense in which they were originally present.[1] We have preferred to regard the symbolic process as having many roots, and as extending into the animal world, the social-vocal situation giving the most effective and important development of a process that need not be either vocal or social, but which attains its highest development in the social-vocal situation. Should it seem advisable at a later time to limit the extension of the term symbol to socially acquired symbols, the range of mind on the symbolic theory would be correspondingly limited but the theory as to the nature of mind would not be changed.

On the symbolic theory the criterion of mind is the presence of symbols in a perspective. Mentality is the symbolic functioning of events. Speaking in the most general form, mind is the locus of symbols. If it is preferred to adopt Dewey's distinction between mind and consciousness, it may

[1] Thus Markey writes, op. cit., p. 138, "within a symbolizing behavior system there is one part of the integrated behavior *which stimulates and presents absent situations, past events, and possible future events*—the whole range of the universe for which adequate symbols are at hand." (Italics mine.)

be said that consciousness denotes the present functioning of symbols, while the phrase "a mind" denotes the entire systematic symbolic repertoire of an organism.

III. SOME IMPLICATIONS OF THE SYMBOLIC THEORY OF MIND

There now remains the need of briefly considering the symbolic theory of mind in terms of the philosophical, psychological, anthropological, and logico-mathematical criteria which were suggested as tests for any adequate theory of mind. In this consideration, certain implications of the theory will be suggested.

To begin with the philosophical implications, it is evident that the symbolic theory of mind combines to some degree the central claims of the rival theories of mind: with the idealists it admits that the content of mind is the world, and that mind is an active systematic process; with the new realists that the world as experienced is not a collection of mental states or in a mind; with the critical realists (and here the divergence is greatest) that the active, unitary, "substantial" aspect of mind is dependent upon the unity and activity of the organism.

The theory also avoids any dualism between mind and the experienced world, or between mind and the body. Since any experienced content may function symbolically, any portion of the experienced world may put on or take off the status of being mental by functioning or ceasing to function symbolically. To a large degree the symbolic theory of mind is metaphysically neutral and it could be harmonized with any one of the typical philosophical theories. On this view, a dualism between mind and the world could only arise if the world of experience (and so of mind) is regarded as different in kind from the world of "reality."

The symbolic theory of mind is able to deal with truth or knowledge,[1] and the converse, error, provided that truth and error are regarded as describable in experiential terms, and not as requiring a relation of experience to a non-experienced reality. By the compounding of symbols, which allow of the compounding of meanings, predictions as to further experiences may be made, and when the experience as predicted is the experience obtained, the prediction is said to be true and a case of knowledge. When the completing experience is not obtained as predicted, then the prediction is said to be false. Just as experience is not as such mental, so it is not as such true or false or a case of knowledge, all of which depend upon the symbolic functioning of events.

As for the relation of the present theory to the positions of the psychologist, the present position, which in psychological terms may be called a neo-functionalism, utilizes the material of both the existential and the behavioristic psychologist, while rejecting the claim of either to give by itself an adequate account of mind. Mind is regarded here neither as the content of experience considered in its dependence upon the nervous system, nor as reducible to physiological behavior. Nevertheless, it may be agreed with the existential psychologist that a complete description of meaning requires the inclusion of material not observable from the behaviorist's perspective, and with the behaviorist that meaning is not statable without reference to the behavior that is involved in the substitution of stimuli.

Because of the fact that every symbol involves behavior, the employment of symbols can effect even the glandular processes of the organism, and so the present theory is

[1]The topics of truth and knowledge are treated from the symbolic point of view in two articles in the *Monist*, 1928, vol. 38: "The Prediction Theory of Truth," pp. 386-401; "Neo-Pragmatism and the Ways of Knowing," pp. 494-510.

capable of being extended to the phenomena of auto-suggestion and hypnosis. Time does not permit a consideration of the bearings of the theory on such topics as the dissociation of personality, and mental disease.

As for biological considerations, the symbolic theory of mind allows both for the tracing of the development of intelligence in the animal world and the exhibition of the way in which mind has maintained itself in the selective process of evolution. As for the first point, with the present definition of the symbol, it is possible to regard the rudiments of mind as appearing in animals below the human level. While no agreement in the interpretation of the delayed reaction experiments can be claimed,[1] there is much in such experiments that justifies Hunter's use of the concept of the symbol in the interpretation of such experiments. At the same time it may be admitted that many animals show no behavior that seems to require the introduction of the symbol, and that wherever mind exists in the animal world, it is probably below the level of the language-symbol. So that while bridging the gap between animal behavior and the human mind, the theory is able to do full justice to the unique development and capacity of the human mind.

Indeed, man's place in the world of living beings is due to the extensive development of the symbolic process which human society has permitted. While even the simple symbol may be of some biological value, since the rearousal of the original stimulus presents new stimulating features in addition to those of the substitute stimulus,[2] the extensive de-

[1] Markey is willing to admit that the symbolic process is built upon the delayed reaction behavior, but does not wish to use the concept of the symbol to explain such behavior. See op. cit., chapter 8.

[2] Perhaps what Pavlov says of substitute stimuli may be true here also: "the sum of the stimuli acts more strongly than they do separately" (op. cit., p. 54).

velopment of language symbols makes possible the funding of many experiences, past and present, and thus makes possible the effective organization of social resources in dealing with social and individual problems. Symbols may be regarded as mental antennae, the farthest present extension of the process which has passed from the dealing with objects by touch, to the dealing with distant objects by the development of the distance receptors, and finally to the dealing with absent objects through the functioning of their present symbolic substitutes. In this sense, mind is the furthest extension of the learning process, the most effective form of making adjustments which the evolutionary process has produced and maintained.[1] The relation of the symbolic process with the evolutionary process is intimate and illuminating.

Anthropologically, the mind of primitive man is seen to differ from the mind of modern man in the number, range, abstractness, permanence, and definiteness of the symbols, and in their coherence and interconnectedness. To ascribe the characters of "prelogical" and "mystical" mentality to early man is to be in danger of exaggerating the differences of primitive and modern mentality. It is true that primitive man has no adequate technique for separating the causal and non-causal sequences of experience, that he often confuses and identifies the symbol and that which is symbolized, and that objects often have different meanings than they have for us, but to some degree all of these factors continue to appear in most contemporary minds. The recognition of the differences between primitive and modern mentality should not obscure the fact that these differences are earlier

[1] Cf. Thurstone, *The Nature of Intelligence*, chap. 5. The social function of language symbols is well developed in the previously mentioned work of Grace de Laguna.

and later stages of one cultural process. Although there are perhaps native differences between "races" and individuals in the capacity for symbolic attainment—differences perhaps in a process of evolutionary selection—the main differences between modern and primitive man are undoubtedly expressible in terms of social heredity rather than in terms of "mental" ability. Also, the recognition of the individual phases of the symbolic process (the recognition that however important the social factors in this development, the symbol requires contact by the individual with actual objects)[1] prevents the excessive emphasis upon the "collective representation" aspect of primitive symbols. Here, as elsewhere, the individual and society are correlative.

Only a word can be said about the logical and mathematical implications of the symbolic theory,[2] and even then only the formal aspects of these studies will be referred to. It has already been noticed that the tendency of the realistic philosophy was to withdraw mathematical and logical propositions from the realm of mind and the realm of matter, and to regard them as inhabiting a unique realm of being, the realm of subsistence. The symbolic theory of mind is able to avoid such a realm, and to take account of the genuine creativity of the mathematician and logician, by regarding logic and mathematics as a development of, and a specialization within, the symbolic process. By this orientation, the formal studies are linked with and share all the benefits of the reflective process. Neglecting the question as to the origin of formal propositions and the question of their truth

[1] Goldenweiser criticizes the neglect of the technological activities of the individual in the theories of Levy-Bruhl and Durkheim on pp. 380-389 of his *Early Civilization;* and criticizes the doctrine of collective representations in the *American Anthropologist,* 1911, vol. 13, pp. 121-130.

[2] This topic is treated in some detail in an article, "The Relation of Formal to Instrumental Logic," contributed to the volume, *Essays in Philosophy,* The Open Court Publishing Co., 1929.

or application outside of the formal system, it may be said that the distinguishing characteristic of the mathematical and logical types of reflection lies in the generality of the symbols employed (the symbols standing for any other objects that meet the specified requirements), in the use of symbols defined entirely in terms of other symbols (such as the square root of minus one, and the point at infinity), and in the restriction of interest to the interconnection or consistency of the symbols (which is expressed in the postulational deductive form which the formal studies ultimately assume). Symbols have relations to each other as well as to non-symbolic events, and the formal disciplines study in its most general form this interrelatedness and mutual dependence of symbols. By being connected with the symbolic process, no diremption of mathematical or logical objects from either mind or nature is necessary. This suggestion is fragmentary, to be sure, but it indicates that the symbolic theory offers the possibility of accomplishing that which has constituted a signal weakness of most empirical philosophies, namely, an empirical approach to the domains of formal logic and pure mathematics.

Finally, the symbolic theory of mind is not a "silly" theory. It can do full justice to mind—it "saves the appearances" of mind—without unduly exaggerating the place or nature of mind. It makes intelligible popular expressions which refer to one mind as better than another, which speak of the development of a mind, of the dissociation of a mind, of the unity of the mind, of the activity of the mind, and the like. Without reducing mind to physiological behavior, the theory explains the close relation of mind to behavior. By the capacity of mind to influence behavior, in the fact that the rational being is able by the operation of symbols to determine in part his own behavior, is to be found the genuine

source and meaning of human freedom, of moral value, and of moral responsibility; in the anticipation and partial control of future consequences which the operation of symbols allows, is to be found that earnest stimulation to coöperative endeavor which makes man the individual and man collectively a determiner of destiny and not a mere puppet in the hands of Chance. In the socially oriented life of mind is found the factor which gives unique value to human striving, and which furnishes the only sound basis of legitimate hope.

CHARLES W. MORRIS.